

**Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services**

STATEMENT OF BASIS

UOP, LLC
UOP, LLC - Shreveport Plant
Shreveport Caddo Parish, Louisiana
Agency Interest Number: 17846
Activity Number: PER20080008
Proposed Permit Number: 0500-00020-V5

I. APPLICANT

Company:

UOP, LLC - Shreveport Plant
8725 Old Mooringsport Rd
Shreveport, Louisiana 71107

Facility:

UOP, LLC
8725 Old Mooringsport Rd
Shreveport Caddo Parish, Louisiana

Latitude 32 37 7 Longitude 93 55 29

II. FACILITY AND CURRENT PERMIT STATUS

UOP LLC Shreveport Plant (UOP), an existing catalyst manufacturing facility, located approximately 15 miles northwest of Shreveport, in Caddo Parish, began operation in 1950 prior to promulgation of the Louisiana Air Quality Regulations in 1969. The plant operated under various permits in the form of certificates, exemptions and variances, the last of which, a variance request for installing controls on the existing spherical catalyst manufacturing unit (SCM) to net out of PSD review, was granted on December 27, 1990.

UOP LLC - Shreveport Plant is a designated Part 70 source and currently operates under Permit 0500-00020-V4, issued December 19, 2008.

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application was submitted on November 11, 2008 requesting a Part 70 operating permit for the UOP, LLC - Shreveport Plant. The application was subsequently revised on October 8, 2009. Additional information dated November 9, 2009 was also submitted.

Project

UOP, LLC requests renewal for its Shreveport Plant Part 70 Permit No. 0500-00020-V5. It also proposes the following actions:

1. Replace the burners of the existing Oxidizer Oven on Spherical Catalyst Manufacturing SCM Line 2, Emission Points 240-01 thru 240-08, and revise the emissions accordingly;
2. Update the emission rates of the South Laboratory Fume Scrubber, Emission Point 110-02, to incorporate:
 - a. emissions from Laboratory Scale Production Unit, Emission Point LAB-01, approved under a Small Source Exemption issued August 11, 2004,
 - b. emissions from a proposed Semi-Works Unit; and
3. Route the emissions from the Raw Materials Repackaging Area approved under a Case-By-Case Insignificant Activity issued April 4, 2005 to the Repackaging Area Dust Collector, Emission Point 150-01-A, previously called Warehouse Bagging Dust Collector,
4. Allow processing of base-metal materials containing nickel, cobalt, copper and manganese at the warehouse bagging area which is controlled by No. 8 Warehouse Dust Collector, Emission Point 150-02 (EQT 020). Revise the emissions from 150-02 accordingly;
5. Delete twelve (12) Emission Points. These are: No.1 Steam Boiler, Oversized Spent Catalyst Screening, Spent Catalyst Dryer/Gas Scrubber, Mill Crusher Dust Collector, Feed Tank Car Loading / Unloading, Drum / Tank Truck Loading / Unloading, Railcar Loading / Unloading, Low Vacuum Pneumatic Conveying System, Batch Aluminum Digester, No. 1 Scrubber, Continuous Aluminum Digester, No. 2 Scrubber, Belt Press Filter System, and Sludge Dryer. Emission Points: 140-01 (EQT 005), 220-02 (EQT 028), 270-04 (EQT 033), 270-07 (EQT 035), 300-16A (EQT 045), 300-18 (EQT 047), 300-20A (EQT 048), 320-02 (EQT 055), 410-03 (EQT 061), 410-04 (EQT 062), (EQT090), and (EQT 091), respectively;
6. Revise the permitted emissions for the Boiler CAP (Emission Point 140-CAP);

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7. Add to the list of sources venting to Emission Point 140-05, emission sources that are listed in the current permit as insignificant activities. These are: RWT1 Tank - Recycle Water from Inorganic Process, Recycle Water Tank, Spent Recycle Water Tank, Tank for Distillate from Evaporators, 5-10% Caustic Solution Tank, Spent Recycle Water Tank, and Brine Tank, Emission Points SV-140-95, SV-140-100, SV-140-111, SV-140-115, SV-140-116, SV-140-134, and SV-280-83, respectively;
8. Update the Insignificant and General Condition XVII Activity lists;
9. Change the scrubber operating parameter range of the Conical Evaporators Fume Scrubber, Emission Point 240-09-A, from NaOH concentration ≥ 1.0 weight percent to pH ≥ 9.0 s.u;
10. Change the scrubber operating parameter range of the SCM Scrubber Stack, Emission Point 330-01-A, from HCl concentration ≥ 0.03 weight percent to pH ≤ 6.5 s.u;
11. Change the pH control requirements for Emission Points 900-04, 900-05-A, and 900-08;
12. Include three cooling towers, currently reported on the Insignificant Activity List, as regular emission sources. These are: RWT/Reduction Cooling Tower, SCM Lines 1 & 2 Cooling Tower, and SCM Line 3 Cooling Tower, Emission Points CT-01, CT-02, and CT-03, respectively;
13. Incorporate into the permit the below listed actions:
 - a. Installation of a small-scale unit for Production of Specialty Coating Material, Emission Point SC-01, approved under a Case-By-Case Insignificant Activity, issued March 19, 2009,
 - b. Addition of a small-scale unit for Production of Specialty Catalyst - Preparation, Emission Point SC-02A, and Production of Specialty Catalyst - Process, Emission Point SC-02B, approved under a Case-By-Case Insignificant Activity, issued April 15, 2009,
 - c. Installation of a natural gas fired Cummins GM 3.0 L Emergency Generator, Emission Point 140-07 (EQT 0125), approved under a Regulatory Permit for Emergency Engines issued July 29, 2009; and
14. Correct minor errors in Permit No. 0500-00020-V4, issued December 19, 2008, under which the facility is currently operating.

Proposed Permit

Permit 0500-00020-V5 will be the renewal/modification of Part 70 operating permit 0500-00020-V4 for the UOP, LLC – Shreveport Plant.

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Permitted Air Emissions

Estimated emissions in tons per year are as follows:

<u>Pollutant</u>	<u>Before</u>	<u>After</u>	<u>Change</u>
PM ₁₀	79.07	74.16*	- 4.91
SO ₂	9.17	6.59	- 2.58
NO _x	436.53	416.04	- 20.49
CO	329.15	311.71	- 17.44
VOC	344.20	306.56	- 37.64
TAPs	225.208	220.411	- 4.797

*Includes 42.79 TPY of Aluminum oxide (Al₂O₃) emissions.

VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

<u>Pollutant</u>	<u>Before</u>	<u>After</u>	<u>Change</u>
Benzene	0.123	0.018	- 0.105
Cumene	0.001	-	- 0.001
Dimethyl formamide	0.082	0.079	- 0.003
Dimethylnaphthalene (PAH)	1.86	-	- 1.860
Ethyl benzene	0.073	0.035	- 0.038
Formaldehyde	7.110	7.113	+ 0.003
Toluene	0.090	0.020	- 0.070
Xylene (isomers)	0.011	0.001	- 0.010
Total	9.351	7.266	- 2.085

Other VOC (TPY)

299.294

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Non-VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Ammonia	145.53	143.789	- 1.741
Chlorine	5.341	5.338	- 0.003
Cobalt Oxide	0.184	0.180	- 0.004
Copper Oxide	0.281	0.280	- 0.001
Hydrochloric Acid	49.240	48.227	- 1.013
Hydrogen fluoride	4.503	4.503	-
Hydrogen Sulfide	0.438	0.439	+ 0.001
Manganese Dioxide	0.022	0.022	-
Nickel Oxide	0.1130	0.115	+ 0.002
Nitric Acid	10.083	10.130	+ 0.047
Sulfuric Acid	0.122	0.122	-
Total Non-VOC TAPs	215.857	213.145	- 2.712
 Total TAPs (VOC & non-VOC	 225.208	 220.411	 - 4.797

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

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Applicability and Exemptions of Selected Subject Items

ID No.	Requirement	Note
SHREVEPORT PLANT UNF0001	40 CFR 82 – Subpart F	Comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B
	Prevention of Significant Deterioration of Air Quality [40 CFR 52.21/LAC 33:III.509]	DOES NOT APPLY. The emission increases requested in this application are less than the significance levels defined in LAC 33:III.509B. UOP Shreveport Plant does not have any PSD permits.
	40 CFR 60 – Subpart A.	All affected facilities shall comply with all applicable provisions in 40 CFR 60 – Subpart A.
	40 CFR 63- Subpart FF - Standards for Benzene Waste Operations [40 CFR 61.340]	EXEMPT. Total mass of benzene in facility waste is less than 1 Mg/yr. In accordance with 40 CFR 61.357, an initial report was submitted to the EPA in April 1993 that summarized the regulatory status of each waste stream subject to 61.342.
GRP0003 or EQT058, EQT059, FUG002	40 CFR 60 - Subpart VVV - Polymeric Coating of Supporting Substrates Facilities [40 CFR 60.740]	DOES NOT APPLY. Does not meet the definition given in 60.740. Polymeric coating is performed in the Sarex Unit; however, the polymer used in the unit is polyethyleneimine (PEI) which is a waterborne coating of less than 9% volatiles. In addition, the process is not a web coating process.
GRP0004 or EQT036 FUG008	40 CFR 63 - MACT Subpart DD - NESHAP from Off-Site Waste and Recovery Operations [40 CFR 63.680]	EXEMPT. Total annual quantity of HAP that is contained in the spent catalyst (off-site material) received at this unit is less than 1 Mg/yr. Recordkeeping requirements only per 40 CFR 63.680(d)(1) through (3).
Boilers EQT006, EQT007	LAC 33:III. Chapter 13 - Emission Standards for Particulate Matter.	Comply with Opacity <= 20 percent; except emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes (Complies by using sweet natural gas as fuel). [LAC 33:III.1311.C]
	40 CFR 60 - Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units [40 CFR 60.40(b)]	DOES NOT APPLY. Boilers have a maximum heat input less than 100 MMBTU/hr. [40 CFR 60.40(b)(a)]
	40 CFR 60 - Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units [40 CFR 60.40c]	EXEMPT. No construction, modification, or reconstruction commenced after 6/9/89. [40 CFR 60.40c(a)]
Boiler No. 5 – EIQ113	40 CFR 60 - Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating	Subject to recordkeeping and reporting only.

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	Units [40 CFR 60.40c]	
Process Vent/ Cyclone/ Scrubber <i>(emissions from natural gas burners, calcining ovens, drying ovens, inorganic and organic fumes)</i> EQT056, RLP021	40 CFR 60 - Subpart UUU - Standards of Performance for Calciners and Dryers in Mineral Industries [40 CFR 60.730]	DOES NOT APPLY. UOP is not a mineral industry. [40 CFR 60.731] Per an applicability determination by EPA on 9/12/1996, the UOP facility does not process mineral alumina, but does process synthetic alumina which does not apply. The alumina processed at the facility is produced synthetically using a combination of pure aluminum, hydrochloric acid, and/or aluminum hydroxychloride solution as the raw feed materials. (The mineral industry produces alumina from bauxite ore.)

Prevention of Significant Deterioration/Nonattainment Review

NA

Streamlined Equipment Leak Monitoring Program

NA

MACT Requirements

Comprehensive Toxic Air Pollutant Emission Control Program [LAC 33:III.Chapter 51].
APPLIES (STATE ONLY). LDEQ MACT determination is that the facility complies
 with specific sections of 40 CFR 63 Subpart G for storage vessels. However Subpart G
 does not apply because the facility is not a chemical manufacturing process unit as
 defined in 40 CFR 63 Subpart F. Therefore, this remains a state only requirement.

Air Quality Analysis

Emissions associated with the proposed renewal/modification were reviewed by the Air
 Quality Assessment Division to ensure compliance with the NAAQS and AAS. LDEQ
 did not require the applicant to model emissions.

The maximum concentrations for various pollutants listed in the table below are obtained
 from a refined dispersion modeling performed by the permittee and submitted to LDEQ
 in January 1993, and from a screen using ISCST3 for PM₁₀ performed by LDEQ in
 March 2005. The former did not include emissions of Aluminum Oxide (Al₂O₃), which is
 particulate matter. LDEQ Office of Environmental Assessment – Air Quality
 Assessment performed an ISCST3 (screen) for PM₁₀ in March 2005 which incorporated
 Al₂O₃ emissions into the total PM₁₀ emissions. The screen results showed that the total
 PM₁₀ emissions are within the ambient air quality standards and no further modeling is
 required of the facility at this time.

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Sulfur Dioxide (SO₂) – An oxide of sulfur.

Sulfuric Acid (H₂SO₄) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.